# CASE REPORT : PERIPARTUM CARDIOMYOPATHY

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## Abstract

**Background**: Peripartum Cardiomyopathy (PPCM) is a distinct type of Dilated Cardiomyopathy (DCM) which is marked as the dilated ventricle of the heart with Ejection Fraction (EF) less than 45%, followed by heart failure symptoms and founded in pregnant woman between the last month of pregnancy to six months postpartum. The aetiology is still unknown, and yet some cases are not well identified.

**Case Presentation**: A woman, age 28 years, P3A0, diagnosed with PPCM with shortness of breath after 30 days given birth. It is in accordance with symptoms of heart failure and was not accompanied by a similar previous illness history or other illnesses during her pregnancy. There is a history of hypertension before given birth. She had been treated in Puskesmas (Community Health Centre) but there is no improvement, and eventually, the patient had herself be examined in our Internal Medicine Division at Muntilan General Hospital and admitted as an inpatient. On physical examination revealed fine crackles on bilateral basal pulmonary and pitting oedema on both legs. Patients treated as an inpatient for 3 days and discharged with symptomatic improvement. She routinely kept an appointment in our outpatient clinic with some medications such as a diuretic, a β-blocker, an Angiotensin Converting Enzyme Inhibitors (ACE Inhibitors) and an Acetylsalicylic Acid.

**Conclusions**: Peripartum Cardiomyopathy (PPCM) is one of the cardiovascular diseases which causes are still unknown yet and in some cases are uncontrolled. By knowing the signs and symptoms as well as controlling the disease, hopefully, it will reduce morbidity and mortality rate also the length of stay in Hospital.

**Keywords**: Cardiomyopathy, Pregnancy, Systolic Heart Failure, Cardiomegaly, Echocardiography

**Background**

Peripartum Cardiomyopathy (PPCM) is a distinct type of Dilated Cardiomyopathy (DCM) which is marked as the dilated ventricle of the heart with ejection fraction less than 45%, followed by heart failure symptoms and founded in pregnant woman between the last month of pregnancy to six months postpartum, without any previous history or sign and symptoms of cardiovascular disease.[1,2,3,4,5]

The incidence of PPCM which has been reported in the United States ranges from 1 in 1000 - 4000 live births, with more cases found in Afrika followed by Asia.[3,4,7,8]

The aetiology is still unknown, but some risk factors include age, multiparous, multiple gestations, hypertension to nutritional status are often related.[2,3,4,6]

Because of the various incidence, lack of awareness among of health caretakers and lack of antenatal care remained unidentified which lead to late treatment.[4, 9] These factors make mortality and morbidity rate increase.[3,4,6]

**Case Presentation**

A woman, age 28 years, P3A0, presented to our Internal Medicine Division Clinic with shortness of breath after 30 days given birth. Also, she experienced a nocturnal cough lead to difficulty to sleep, using more than 1 pillow for sleep, swelling leg and easily fatigue. The shortness of breath always come and go since March 2017. At the first time, she sought help to Puskesmas (Community Health Centre), and been diagnosed with asthma bronchiale and instructed to take  -2 agonist. Because the symptoms aren't going well, she has been referred by a family physician to Muntilan General Hospital.

She refuses any previous illness during her pregnancy. She has undertaken her antenatal care once and according to her, she had normal blood pressure. But, when she went to labour and get examined, her systolic blood pressure was 150. No hypertension and shortness of breath history in her last pregnancy. No cardiovascular disease in her family too.

During her examination, she had a blood pressure of 143/103 mmHg, a respiration rate of 30 beats per minute, a pulse rate of 80 beats per minute and an oxygen saturation of 95% on room air. Physical examination showed no jugular venous distention. Meanwhile, there are rales on her lungs and pretibial oedema. A Chest Radiograph showed cardiomegaly with increase vascular congestion bilaterally (Figure 1). An Echocardiogram showed dilatation of left atrium and ventricle, also dilatation of right atrium

and ventricle; regurgitation of pulmonal moderate, regurgitation of mitral mild to moderate, regurgitation of tricuspid moderate; with hypokinesis global and Ejection Fraction (EF) 20% (Figure 2). An electrocardiogram showed Q wave in lead III and Left Ventricle Hypertrophy (LVH) (Figure 3). She has been treated as an inpatient for 3 days and discharged with symptomatic improvement.

She routinely kept an appointment in our outpatient clinic with some medications such as a Diuretic (Furosemide), a Cardioselective β-blocker, an Angiotensin Converting Enzyme Inhibitors (ACE Inhibitors) and an Acetylsalicylic Acid.

**Discussion**

European Society of Cardiology Working Group on PPCM in 2010 provided a characterization of PPCM as an idiopathic cardiomyopathy which is followed by sign and symptoms of heart failure from systolic dysfunction of left ventricle in the last month of pregnancy to six months postpartum, without any previous history or sign and symptoms of cardiovascular disease and EF <45%.[1,2,3,4,5,10] Tachycardia, tachypnea, pulmonary rales, an enlarged heart and S3 heart sound.[2] Additional wheezing from heart origin that indicate pulmonary oedem sometimes misinterpreted as asthma bronchiale.

PPCM is one of DCM type because the similarity of morphology in echocardiogram finding, which is dilatation of left ventricle. The hypothesis of PPCM are cardiovascular stress due to increase fluid load in pregnancy or due to inflammation process (myocarditis). Other risk factors are autoimmune respons to pregnancy itself and malnutrition (such as selenium deficiency).[1,2,3,4,6]

There is no definite laboratory for PPCM, therefore echocardiogram is a specific workup and helpful for differentiate PPCM with other cardiomyopathies.[2]

Patients have to restrict their fluid and salt consumption and take their medication that usually given for heart failure cases such as a diuretic, β-blocker or digoxin. Antihypertensive such as ACE inhibitors could be prescribed but contraindicated in pregnancy.[2] Ejection fraction usually normalize after the medication but it still unclear when the best time to discontinue the medication since some cases with poor EF can be asymptomatic.[3] Therefore, the medication should be continued at least one year and some experts recommend annual echocardiography.[2,3] Heart transplantation is the last choice of treatment for poor end stage of heart failure.[1,2] Relapse in subsequent pregnancy in PPCM is higher, thus the next pregnancy is not recommended.[2,3]

This case report shows PPCM that unidentified at first because it has been diagnosed as asthma bronchiale lead to mistreatment and the symptoms were not improved. From medical history to physical and imaging finding which best define the PPCM itself are the heart failure sign and symptoms postpartum without previous cardiovascular disease history, hasn't improved by B-2 agonist drug, rales on both side of pulmonary and pretibial oedema, presented with cardiomegaly on chest radiograph, LVH on ECG and EF 20% on Echo, leading to improvement of her issues with our treatment. History of hypertension before given birth enhance the probability of cardiovascular stress due to fluid overload.

The limitation of this research is less length of observation time in patients so that any change of EF from early assessment to post-treatment and its relationship with the symptoms cannot be compared. Therefore, long term counseling on women with PPCM is highly recommended to assess the chances of relapse in the next pregnancy.[3]

## Conclusions

This case report displays an overview of PPCM from early identification of the disease until a proper treatment. It is very important that physician knows characteristics of PPCM so that the rate of mortality, morbidity and length of stay as an inpatient can be diminished as best as possible.

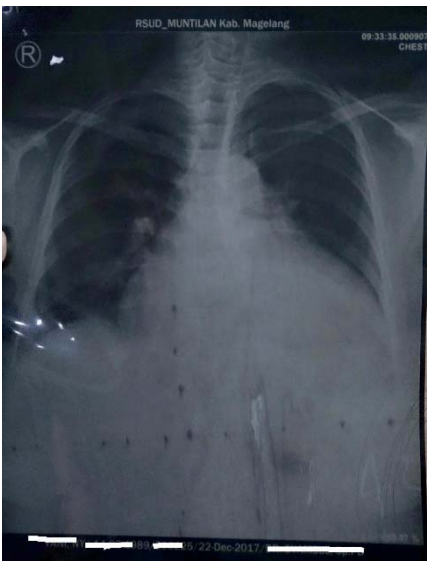


Figure 1. Chest Radiograph finding on the patient

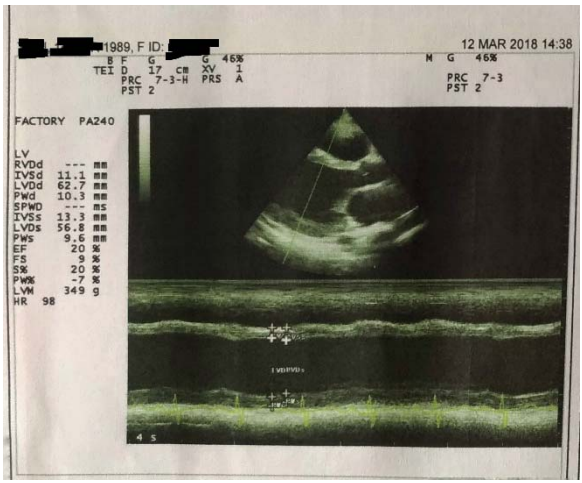


Figure 2. Echocardiogram finding on the patient

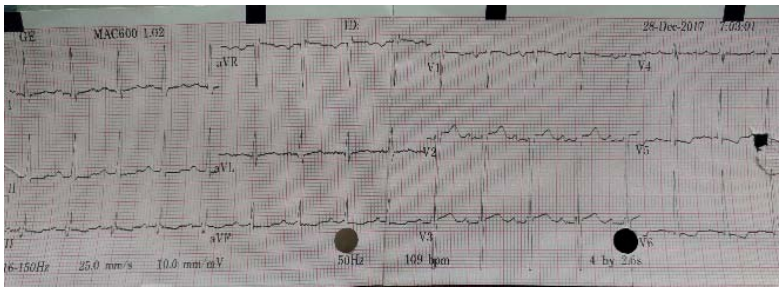


Figure 3. Electrocardiogram finding on the patient

## Abbreviations

ACE: Angiotensin Converting Enzyme; DCM: Dilated Cardiomyopathy; ECG: Electrocardiogram; EF: Ejection Fraction; LVH: Left Ventricle Hypertrophy; PPCM: Peripartum Cardiomyopathy;

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## Authors' Contributions

Conception and design of the work : MV, ZM; data collection, data analysis and interpretation : MV; critical revision of the article : ZM; final approval of the version to be published : ZM.

**Ethics Approval and Consent to Participate**

Not applicable.

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